

**PERMANENT FIXATION OF DYES TO SURFACE-MODIFIED
INORGANIC PARTICULATE-COATED MEDIA**

5

ABSTRACT OF THE DISCLOSURE

Systems and methods for producing permanent ink-jet images are provided. In one embodiment, a system comprises a media substrate coated with a porous media coating, wherein the porous media coating comprises inorganic porous particulates, and wherein at least a portion of the inorganic porous particulates have a first reactive group covalently attached thereto. The system further includes an ink-jet ink containing a dye, wherein the dye comprises a second reactive group, and wherein the first reactive group and the second reactive group are configured to react with one another upon contact to form a covalent bond. In an alternative embodiment, a method of producing permanent ink-jet images can comprise the steps of covalently bonding a first reactive group to an inorganic porous particulate; coating the inorganic porous particulate onto a media substrate to form a coated media substrate; ink-jetting a dye-containing ink-jet ink composition onto the coated media substrate, wherein the dye includes a second reactive group. The first reactive group and the second reactive group, upon contact, can interact to form a covalent bond.